1980

UNITED STATES
DEPARTMENT OF THE INTERIOR

DI-6

APPROVED DECEMBER 1941

1980

7/9/80

9:48 am

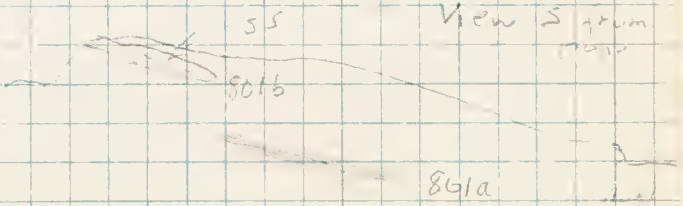
SE, SW Sec 16 T 8S Sunny
R. 23E Carbon Co. Mont.

Lbt @ 200 m' E of Silvertip road.

801 Kcbo mbr. interbedded w
rare yellow sand x bedded
ss.
Strike NW Dip 3.25 W.
Upper Kcbo mbr.

801 a Carb, fissle shale
Dark grey w/ moroc of
fract. impr. fossils
Ver

801 b ss lens 151 above
801 a Eroding hill. med
grained, x bedded.



Very poor fossils

7/9/80

Low ridge between 2 small Tribs Cub Cr.
Lebo mbr. on Cub Creek
802 SE, SW, Sec 20, T 8S R 23E
Long Draw 7½

~~Tcm~~

803a Siderite nodules w/ poor fossil leaves
3 pieces of bone in float from conc. layer

802 b. Pls. from ss. ledge 10' above siderite concs.

Strike & Dip
146° 6° S

ss x bedded, Tabular, w/ Unios (impressions)

803 NE, NE, NW, NW
Sec. 29, T 8S R 23E
Carbon Co.
Conc. layer cropping low hill, Dicot lvs. w/
Glyptostrobus,
Platanus reynoldsii

Low Knoll c. of stream capped w/ weathered siderite concs.

3/9/80

Lehr badlands valley on small NW flowing trib. of Cub Creek.

804 SW, NE, Sec. 29, T 8S, R. 23 E.

, T ___ R 23 E.

Yellowish & tannish grey Lehr w/ occasional lenses of ~~silt~~ SS.

Brownish BLACK SANDY ~~silt~~ Limonite nodules present in layers - (gr. water levels) Rather thin pedal str.

I wonder if Lehr isn't a flood plain w/ aerated soils & humid climate (enough rain).

~~Some str.~~

Thin silt w/ root casts no structure. Probably an old soil.

805 SE1/4, SE1/4, NE1/4, Sec 29, T 8S, R. 23E on a spur in badlands

Bone scrap in limonite conc nubble on top of a SS. ridge

7/9/80

806 On Cub creek, SW projecting spur of Lebo, SW¼, NE¼, NW¼, Sec 33 T 85, R 23E.
Long Draw 7½'

~~S20m~~

Lebo W SS lenses
& lignites
Poor Gymnosperm
remains in shs. above
lignites
SS in part ~~illegible~~
plant debris

~~Pollen~~ pollen sample

806a Sample 806a
from prominent lignite &
adjacent clays
520 m E, 300 m S of NW corner Sec 33
T85, R. 23E.

806b Platanus reynoldsii in xbedded
SS to leaves

Poor spore pollen preserved

also — Cercidiphyllum

Loc. 809. 815 m N, 285 m W, SE Cor.
Sec. 3. T 9S, R. 23 E., Carbon
Co., Mont.

7/10/80

All locs on Long Draw 7½

807 NW SW Sec 3, T 9S R 23 E
Well, Carbon Co., Mont.
WRITTEN ON CASING pipe
WEBB.
NW-SW Sec 9S R 23E

Sec 4/ NE facing hills
Coffee & cream Lebo
w SS Channels.
SS. X bedded Tan, resistant
w trees.
60 m e, 30 m s Center W bdy sec 3, T 9S
R 23E

808 Near Center Sec. 4
TAN hills. on spur of
Lebo Mbr. forming SW side of
Cub Creek abt 100' above
creek Should be EXAMINED.
Lebo w/ resistant LENT. SS ledges
up to 15' Thick.

809 NE, NW, SE Sec 3 T 9S, R 23E
CARBON CO. MONT
Fossil PLANT SITE in x SS
Channel SS lens
Platanus nobilis
Carya antiquorum
Cercid fruits
Ginkgo FRUITS & leaves
Acer Seeds.
Some fresh WATER ls in SL, p-
Along road, p M up slope

8022 Census

Platanus reynoldsii 1
Cercidiphyllum 1
Possible Sycamore 11

7/10/80

High Temp 100°+

809 Cont'd.

All locs. on Long Draw 7½'

Dip: 8.25° W

810 700 m N, 315 m W, SE Cor., Sec. 3
T 9 S, R. 23E, Carbon Co., Mont.

Grit impure w/ Chert
& Qtz granules in poorly
sorted SS matrix.

SS micaceous

811 Dip & Strike by level on top of
SS bed

615 m N, 245 m W, SE Cor. Sec. 3
Sec 3 T 9S R 23E.
176° 6.5° W

SS micaceous

812 Lateral equivalent of
SS channel at 809
More shale finer grained SS.
Cryptostrobus
fine grained gray shale type

815 m N, 350 m W, SE Cor. Sec 3

7/10/80

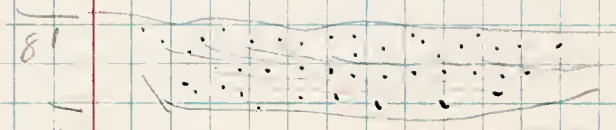
8013 Lebo at top of escarpment on S side of Hunt Creek
Sec 2, T9S R23E

Pollen sample from dark layer (waxy) ~~x~~ above SltSt (soil)
Scott will buy beer if no pollen

610 m. N, 560 m E, SW Cor. Sec 2
T 9 S, R. 23 E, Carbon Co., Mont.

Long Draw 7½ Quad.

8014 Center Sec 2, T9S R23E
1,300 m S, 800 m W, NE Cor. Sec. 2
T 9 S R. 23 E, Carbon Co. Mont.
Hunter's Creek 7½' Down, fallen ~~tree~~ cone at head of gulch w 40' of exposed (fresh) Lebo Mbr.



11 Bedded SltSt
← Some leaf skeletons
Massive

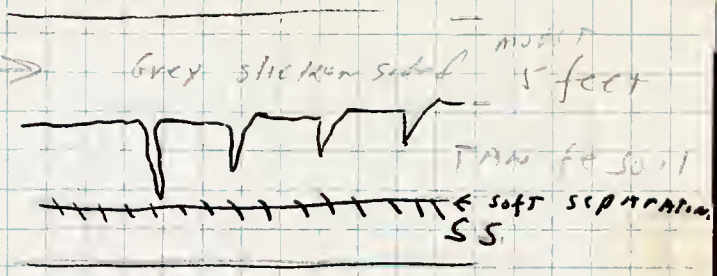
7/10/80
HUNTERS CREEK 9. 7½

1480 m S, 460 m W, NE Cor. Sec 2.
T 9 S, R 23E, CARBON CO., MONT.

8015 ON HUNT CR. ESCARPMENT

SLUMP FACE AT RAVINE HEAD

GREY MOTTLED SOIL HORIZONS ON TAN



TYPICAL SOIL PROFILES.

LEBO IS A FLOOD PLAIN WELL DRAINED WITHOUT EXTENSIVE BACK SWAMPS

8016 SEVIER SEC 12 920 m N, 660 m E,
SW Corn. Sec. 12, T 9 S, R 23E.
FOSSIL LEAVES IN FERRUGINEOUS SS IN LOWER ALLOD
SHOULD RETURN

7/12/80

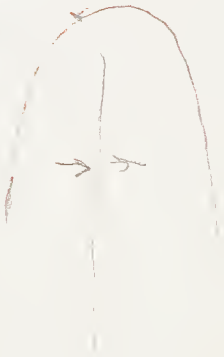
8017 SE1/4, NE1/4, Sec 8, T 9S, R 23E
Zony Draw Quad

Lense Seds, ripple & X-bedded SS
in Tabular bodies., marls, lignites.
STRIKE 150° – 11.5° S
(DIP)

640 m S, 500 m E, Center N bdy Sec 8
T 9S, R 23E, Carbon Co., MONT.

8018 1030 m W, 515 m N, SE Cor Sec 9 in
SW1/4 Sec. 9, T 9S, R 23E
Carbon Co., MONT.

STRIKE 142 Dip. 3.5° S
Hill capped by dipping
Tabular SS. bed.
View Toward S, Shows dip
reversal ~ 4°.



7/12

8019 420 m W, 95 m S, NE Cor Sec 16
IN NE 1/4 Sec 16 T 9S R23E
CARBON CO., MONT.

STRIKE 172° 2½°S

8020 Center Sec 10
780 m E, 675 m N, SW Cor. Sec 10
T 9S, R 23E, CARBON CO., MONT.
Fluvial sequence atop cliffs
w large ss channel lenses
grading downward TO Lebo
at base x in Cub Creek.

8021 Fluv ss x bedded
w/ [illegible]

BEARING AXIS of SYNCLINE
beds TO N dip S.
185 m E, 1175 m N, SW Cor. Sec 14,
T9S, R 23E, Carbon Co., MONT.
Allen Long Draw 7½' Quad

7/12/80

8022 Trailer Summit

SE 1/4 Sec 14 T9S R23E

1100 m S, 180 m W, NE Cor. Sec 14

~~Fe~~ Fossil plants in a clay Fe layer below a X-bedded SS.

Very similar to Serendipity Summit section w/ Th

Cyclopteris
Carya ~~sp~~ antiquorum
Averrhoites?

On 7/23/80 revisited by A. Powell & J Galton.

Found few & poor leaves.

To north of road.

On S. side of road few poor impr in TAN colored SS.

8022 a

Loc.
8023

7/14/80

8023 145 m N, 260 m W, SE Cor Sec 9 in NE Sec 9, T 9S R 22E

IN Hollenbeck Draw

Lake Bed

ss. & marls shale s.

94° N 4.5°

8024 Center w adjy Sec 27, T 9S R 22E

840 m S N~~W~~ Cor Sec 27, T 9S R 22E

Carbon Co., Mont.

49° W 8° on top of 11 bedded Tertiary ss

All 11 bedded lake sed.

ss 11 bedded [illegible]

shale & marls

All on Long Draw 7½' Quad.

8026 Surprise Draw
Near Center of bdy Sec. 28

4/n slopes of an old oil well platform.

[redacted]

7/14/80

8025 Pollen sample 40' S of where road crosses small stream course on W Bdy Sec 27 T9S R22E

From ~~bg~~ marls interbedded w/ brown lignitic shs. in lake bed sequence.

970 m S of NW Cor. Sec. 27, T 9 S, R. 22 E, Carbon Co., MONT. Long Draw Quad.

Centered 800 m S, 100 m W, NE corner Sec. 28, T9S, R22E

8026 [illegible]

Snails from 15' below 8026

8271

7/14/80

8026 a Mollusks in SS.
15' below 8026 b
15' above well platform.

8026 b is 30' above platform.

1275 m N, 1250 m E, SW Cor Sec 22

8027 NW 1/4 Sec. 22, T
58N, R. 101 W, Park Co. Wyo
Clark 15' Fluvial sequence but
w lacustrine intl.
l.c. lenticular bedding esp w
SS units
OUT some mari + fr. water
14h
FLUVIAL in Secs 22-23-24
all trans to LAC.

Hill 10 m South of Sharps
bend in dirt road at
Mont., Wyo border.

[redacted]

7/14/80

MONTANA SAVO Coulee - CLARK FK Dv

80 28 NE, SW 1/4 Sec 33 T

1075 m S, 680 m E, NW Cor. Sec 33.
T 9S, R. 22E, Carbon Co., Mont.
Hollenbeck Draw Quad

Fossil Als in Shale & lignite
Seq. 5' above pavement
Tabular Ss. Top of LAKE Beds

Cercidiphyllum
Metasequoia
Platanus reynoldsii

Collection - Recollected by J. Galtina & A. Powell 7/18-19/80

Metasequoia occ ||||- ||||- ||||- ||||

Cercid. phyllum ||||- ||||- ||||- ||||- |

Persicis arguta 1
Gl[redacted]rostrobus 1
Carya antiquorum 1
Ulmus lunzed dent phyll 1

Unkn 1e w/ elong Tip 1
Seed 1
Chaetospicea 1
Potosia vernucosa 1

8026

"DATURA" 14" w Teeth

[redacted]

7/14/80

8029 Baseball Hill NW, SW, Sec 33

1020 m S, 300 m E, NW Cor. Sec 33
T 9S, R. 22 E, Carbon Co., Mont

Recollected by A. Powell & J. Galton
on 7/18-19/80

145° 7° W

Same Tabular Backswamp Shale
Cont. PLS, ~~[illegible]~~ in Rock
Cracks
Mostly Moss & Ferns
Plat Pteridosp.
Several other unk LVS
PRUS Vib Rotundum

Backswamp Shale

Near Top of Lake Shale

Census.

New large leaf like Vib. Cupan 1
Metasequoia occ. ~~HH HH HH HH HH HH~~ 11
Cercidiphyllum arct. ~~HH HH HH HH HH HH~~ 11
Chaetopteica microphylla 1
Photophyllum 11

8029 Census cont'd

Glyptostromus 1111

Persites argutus 1

Elinor Formation ?

F. Union Formation?

7/14/80

8030 NW NW NW Sec 14, T 58N R 100 W

PARK Co. Wyo.

[illegible] Sed. rocks

Calc [illegible] [illegible]

NLS w/ Ss units

NO fossil pls

345 m, N, 395 m W, SE Cor Sec 30

8031 SE, Sec 30, T 58N

R 100 W PARK Co. Wyo.

ELK BASIN NW 3/4

Fluv. Seq of shales &

Ss

Shs w poor leaf

[illegible] x 100 ft

[illegible] 15' above

[illegible]

[illegible]

[illegible] Sec is Complicated by

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

7/14/80

8032 NW 1/4, SW 1/4 Sec 4, T 57N, R 100W
PARK Co. Wyo.
960 m S, 185 m W, NW Cor. Sec 4
Fluvial Sediments

7/15/80

8033 Wall 920 m S, 610 m W, NW Cor
Sec 21, T 57N, R 100 W.

True Oil Co. Operator.
NE, SW, Sec 21 T 57N R 100W
Park Co., Wyo.

STRIKE & DIP at NW SE Sec 21
T 57N R 100W
107° 5° SW

7/18/80

8034 NW 1/4 Sec 22, T 57N R 100W
Park Co., Wyo.
Claystone w plant fossil
lvs.
Ginkgo
Quartz veins
Cavity fill
Calcite
Crystd silt.
Lt Gy Claystone

A2 348 to BATTERY
Battery incorrectly
placed on map.
1285 m E, 1030 m N, SE Cor. Sec
22

7/15

Sec 27 Barren Alluvial section
Coal? Earth layer
Lime Coal Clay
Old soils

7/15
Examined S 1/2 Sec 21, W 1/2 Sec 22
& extreme NW 1/4 sec 27, and NE 1/2
sec 28.

Barren of fossil plants.
Alluvial in bar & brown in
color as fresh angular ss.
many old soil zones.

7/21

A. Powell & J. Galton

8036 Airport Road loc.
SW 1/4 NW 1/4 Sec 3, T56N, R99W
Park Co. Wyo.
900m N, 340m E SW Cor. Sec. 3.
ELK BASIN SE 7 1/2

On a small spur facing the road.

Grey weathered shale

In the Plesiadapis rex zone
Mid-Tiffanian.

Cercidiphyllum ||| |||| |||| |||| ||||

Zingiberopsis of isonervosa ||

|| veined monocot ||

Several unk leaves

Metasequoia Occ. ||

7/22/80

8037 Rock Bench Reservoir
SW 1/4, NE 1/4, Sec 36, T 57N, R99W
Park Co. Wyo. Elk Mtn 7½
900 m E, 310 m S of the
NW Corner of Sec 36.

Unik pinn leaf
Platanus poss wrightii

Carya antiquorum

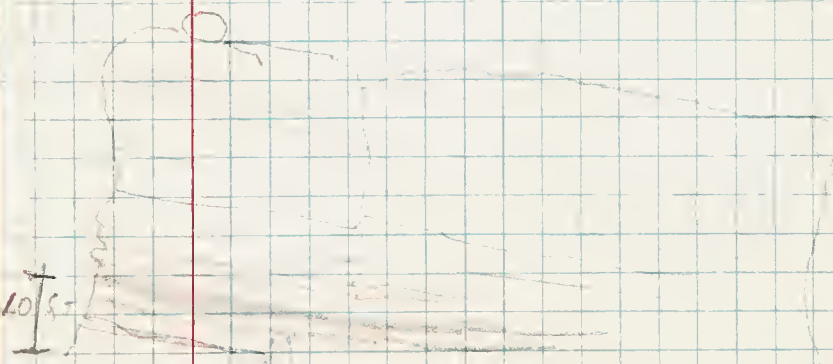
FORT UNION?

9/29/80

80-10 Burgess lignite in a sandy section of Complementite Fm. exposure

NE¼ Sec 24, T 57N, R 103W, Park Co., Wyo 1200 m N, 150 m E, SE Cor. sec. 24.
Clark Quad 15'.

80-10 Pollen sample



Burgess lig.
laminated lig. sh. & silt

6040

SILTST. & f.g. SS interbeds.
Some good x-bedding
preserved, mainly
without ~~fracture~~ str.
some root casts

Looks like a splay
w/ soils developed on
beds between fluvs

W/ A. Powell
J. Falton
B. Dutcher

F/S1/80

8041 Revisiting loc 72127
7860

~~F.10~~ Serendipity Summit

F
SE 1/4 Sec 15 T 9S R 23E
Carbon Co. Wyo.
230 m N 10 m W, SE Cor. Sec. 15
Hunters Creek 7 1/2'
IN fluvial sequence
below Lake Beds.
Ledges of yellow x bedded
SS. Forming ridge T.P
T. North

Strike on 17° x 14° NW
Fossil ledge

C0412. JUST N. of drainage on a SS
ledge. SW 1/4 Sec 24, T 9S, R 23E
CARbon Co. MONT.
256° 5° N

fluvial seq. with SS &
silt

35 m N, 495 m E, SW Cor Sec 24.

7/31/80

8043 Long Draw, Head of SW 1/4 Sec 24, T9S, R23E, Carbon Co., Mont. Hunters Cr. 7½' Quad.

Base of Fort Union S.T.

Paper shale w/ fossil plants in a paral. Shaly fluvial section

Sh & silt, firm, jointed, interbd w ss ledges.

Metasequoia
Equisetum
Aucerhoites ?
Equisetum ?

Sandstone dips ~ 12°

In contour abt 30 m NE a second pit was found

Search for Long Draw Mammal Quarry did not produce any other results so inference is that this (8043) is the loc.

230 m E, 690 m N, SW cor. Sec. 24.

7/31/80

8044 Head of Long Draw

SW¼ Sec 24, T 9S, R. 23 E, Carbon Co., Mont. 'Hunters Creek' 7½'

Lake beds capping hill E of E ½ Sec 23 Plunge of syncline becomes East

~~N 21° E~~ ~~21° S~~ on lake bed 161° 20° S

530 m N, 335 m W, SW Cor., Sec 24.

8045 W side of Head of Long Draw

SW ¼ Sec 24, T 9S, R 23E, Carbon Co., Mont. Hunters Cr. 7½ Quad.

420 m W, 730 m N, SW Cor Sec 24

7/31/80

8046 Head of Kenny Draw

New Center, Sec. 24, T 9S, R 23 E
Carbon Co., Mont. Hunters Cr. 7½

Strike & Dip on top of ft
Tabular SS bed
100' 4° SW.

600m E, 810 m N, Sec 24

8047 Point most East from
Structurally Lowest
high dip Dip 24° at
Base of fluvial strata

SW 1/4, Sec 24, T 9S, R 23E, Carbon Co., Mont.
266° 70° N
Dip gradually flattens
Spur to SW of this point

55 m N, 180 m E, SW Cor Sec 24

7/31/80

8048'

SW 1/4 sec 24, T7 S, R 23E, Carbon Co., Mt.
Fossil leaves in a siderite
impregnated SS.

Cercidi
Platanus
Glyptostrobus.

30m N, 230m E, SW Cor. Sec 24,

on Hunters Creek Quad 7½

8/3

YPM 1041 Paleosol sample taken

#1 Class A gray paleosol

#2 Pseudogley mottled green & red tubules. Taken just below contact with class A grey

#3 Lowest, unmottled B horizon

Igwan Peaks

Higgins or Tyee Trail Fm.
on Eros Creek detachment
setting or Talman Fm.

Abernathy Mt. Volcs. probably
filled BHB to level of 5,000 feet

Talman Mt. Tuffaceous at 6,000
feet + Igwan Peaks surf.
abv Eros Creek and Cr detachment
surface.

For western F-V. Hallowell unit for
F-V, + Lower

530-540 m. level.

Lower part of Lost Cabin or
Bell Butte on Hallowell Butte

Hugh Carter Mt. site - E. Middle Eocene

Wapiti Tyee Trail
Wapiti

8/4

Hey Zodan zone
- disappears in .75

PM 45

burrow from purple, mottled a gray
below gray. "Calyonsoid" type

In lieu of Stop 6

5 Class A Grey horizons
w mammalis
to
Pseudo gley sols.
w leached grey
purple mottled B

Locality D8080 = calcareous. tube( ) -
branches with growth rings: impregnated
with $CaCO_3$ capping hill, bed about 1'
thick Tufa at spring. Small peaks -
Two feet thick mottled grey and yellow
soil with tubes, possible root casts,
gleybules (Type 4 - Bown) below top of hill.

Three-foot thick fissile gray marl with seeds, bone frags.
Bob Bacher suggests spring for $CaCO_3$ deposit at top of hill
Plants include Cercis, and Platanus
in bed at top of hill.

Soil samples

CBHB

8/3/80

paleosol samples

~~Stick Creek~~
Sand Creek FM cliffs
Jacks $CaCO_3$ nodules

Entisols
good cross bed grey fine sand
Spodosols
Best developed Sub tropical
Podsols
Gley soils

SS non-indurated
large unit of purple

~~Basal~~ on FU.

Supergene
A horizon
Podzolized
Fe oxy hydrate nodules

Bank 10

B horizon - mottled red
yellow mudst.

related to Uncemented grey
Channel ss unit

8/5

Bachelors Retreat SS

112 m level.

1846 Acquisition

Alamos

Quarchonite

Calcareous

Calcareous

12' Thick

Coarse upward.

Carb mixed at base

LA Carb Layers

Clays

Thin water bedded ash

Sand Interbeds

SS bed at top of slate

X bedded

Carb mic.

Carb mica

Overlain Andesite Mottled

6/15/50

78 40

Brownish

Laterally continuous

Coarsens backward

Wedges out [illegible]

Thickness of clay layers

Irregularly

Backside

Underclay more silty

Carb shale more fissile

SS overlying in pods in an

[illegible]

on Carb shale

Shows [illegible]

Partial water [illegible]

Zox

Underlying silty
mottled reddish at
contact
Underclay w root traces

Dark shale Thin

Apron Channel SS
Px at Back Kern SS Convent
Bachelor's Retreat 1.5

Hillside
edge of Moore
Channel undefined

Dune
Averrhoites layer in silt
silt above
Crab shale w Ferns ?
Hemitelia

4" of Underclax under
Channel SS w burrow
mottling. No Str

47 + 111 100

300

8/7/80

49 Reshooting the [illegible]

SCCT meets using units 1-69 on [illegible]

0 M Top of HANCE Undoturated SS
[illegible]
FU1 UNCONSOL SS above
Dump ss.
Dip of top HANCE 4½ S [illegible]

10 U
20 U
22 U Base of Bounds SS
Above this typical [illegible]
Yellow green [illegible]

45.0 Silt below ss ledge w/ Meteseq + Carya [illegible]
46.5 U ss [illegible]

48.24 Top SS

50 U
60 U

64.7 base xbed ss Thickens into a channel
to N. Center base of channel at 63 U.
65.0 Top of ss ledge
69.20 Base ss ledge

70.0 Top ss ledge

72.8 U base of thin ss to 73.4 U

[illegible] base of [illegible] lignite below

77.2 top of ss

[illegible] below w/ thin ss

[illegible] base of thin, thinly xbedd ss ledge

87.4 [illegible] ss

91.2 U base of massive ss ledge

91.7 U top " " "

[illegible]

[illegible] base of thin, xbed ss ledge

[illegible]

[illegible] Base of bedded ss ledge

[illegible] Top of " "

124 Base of xbed ss w/ grit & base conglom

124.4 Top of xbed ss

130 Lebo

137 base of 1' thick x bed to massive ss
140 Lebo
ss at 140 w some isolated
grit ss

143.0 contorted bedding
150 Contorted bedding continues
Lebo

152.5 Top of ss this unit is First
Minjon ledge to some where here
156.5 - 156.7 Thin massive ss ledge

159 base of ferruginous xbedded ss
ledge
159.5 Top ss ledge
160 Lebo

167.0 lignite
167.4 Top of lignite
Above 1' shale w/ lignitic stringers
170 Lebo
170.5 xbedded ss ledge some
fine grained

173.7 Top of ss
180 Lebo

181.6 Base of massive xbedded bedded
clay clast conglom at base

1 0 = 1.69 M

181.8 (est) Lacustrine silty clay with trees
190 Lebo
[illegible]
[illegible]
[illegible]

193 4 Top of ss ledge

193.8 Base of ss ledge, interbeds of light shale
200 U Lebo

200.1 Top of ss
Light & shaley interval
& base

208.1 Xbed ss
209 [illegible]
210 U Lebo

[illegible]

225.3 Top of ss
230 Lebo

232.5 Xbedded ss ledge base
234 Top ss ledge
240 Lebo
250 Lebo
[illegible]
Some [illegible]

1 U = 1.69 m

252.6 x bedded ss ledge clay clast congl's in pockets

257.3d major ss ledge w/ trees actually a series of stacked channels separated by friable scr sh/st

260'

Dip on top of ledge 37.5° NE

269 Top of ss ledge
- 290 Lance
- 295 Lance

289.5 ss ledge x bed.
- 296 Lance
- 300 Lance

310 meander, concerted x x bedding

Dip now 11° NE

314 Top of sh
- 310 Fluvial not Lance

319 Level of lowest pollen sample

322 tuffaceous w/ lignites

328 Serendipity Summit level
Top of section Serendipity bed
~ 1.5 ft. thick

SERENDIPITY SUMMIT loc 546 M above top of LANCE

8/8/80

7050 Serendipity Summit
To Long Draw Quarry
Shooting Traverse

Shoot down from 7860
(Serendipity Trail) To
Dromedary SS Icicle in
Long Draw To WE
Then up TO Long Draw
Quarry X Through The Pole
Back From Top of Ridge

-10.4
Top of Local Ridge
-15.4 Base of Cliffs
-20.4
-21.8 Top of Massive, billowy TO X bedded
TAN SS. Supporting Growth of
Limber Pine
Lowest major cliff forming
SS. at head of Long
Drainage Just Local Limber
Pine SS
Unit 8-10 m Thick

1.69 M - 36.8 M To Limber P.
21.8 24.3 M
1352 8.5 M.
169
338
36.832

6/8/80

East — NE side of head of Long Draw on synclinal axis

Mares — Section starts in lignite ash below Limber Pine SS

0 — SW 1/2 to FV 4/1 Fissle Shale w/ Thin interbeds of Lignite up to 6" thick

1.7 — Base of Limber Pine SS f.g. massive to x-bedded Sh ang. Thick Sub graywacke Calc cemented Forms prominent ledges in Limber Pines
5Y 7/2 Color
7 Interbed of fissle, sl. silty 5Y 6/1
7.5 SS as below
SS becomes Thin lx x-bed... [illegible] Tan

10.9 — Top of "Limber Pine" SS. Fine grained ... Evenly ... Fissle 5Y 4/1 Shale

11.3 — Friable SS becoming more ... [illegible]

8951 [illegible]

13.75 [illegible] WATER IS
[illegible] some
[illegible] flecks. SYG/1

[illegible]

19.9 FRIABLE SS IN
[illegible]

15.8 Cervical [illegible]

16.3 [illegible]

18.9 [illegible]
RUSTY orange CONSOLIDATED
[illegible]

19.3 [illegible]

21 [illegible]
[illegible]
23.7 THIN FRIABLE SS bed

8/8/80

SOIL

23.75 Sandy fissile silty sh.
Fr. water ls, Ferruginous st
Ls Conglomeratic MASSES
Fissile silty sh
with beds of similar silt
& silt friable ss

Highly calcareous
fissile sh with lignite
and coal stringers
29 SHALE

31 Becomes a silty mudst
Silt - silt first visible
316 Fissile mudst SHALE

34 Lack of IS Marked to
Interval calc, ss SA
Within sub-rectangular
Forms 2 prominent
ledges & shoulder above
Log Order No Trees

36.4 Top of SS
Friable ss till 37

37 Covered, but uncovered
shows
38 Mudst fissile thin
with silty interbeds

39.2 m
10.9 m

28.3 m alm l.p.

8/8/80

fossil

Fossil Ins at HO

Hunt Ideas

Hill Mound

Flora of Interest

Fossil Plant

Fossil Ins List

Fossil Ins

Mudstone

Plastic

Fossil Soil

Shallow

Into divisible ss

Indurated x

Fine

to IT. grey w/ ss

Top of SL

Fragments to HS.C

Small fossil

because

fossil

8/18/80

8031

49.3 ++ ~~Cuttle~~ SISSI, CArb
fissile shs in interbed

49.6 Fresh WATER ls. Irreg
planar upward to 50.1
laterally bedded calc.
ss

50. Fissile mudst

50.8 Lignite
fissile carb shale

51.4 Variable clg ss. LAKE sed
calcareous and lenticular
in fg clg
x bedded

52.2 ~~C~~ Tan and lenticular
friable ss

52.3 TAN fissile mudst
tuffaceous shs. Fissile
shs. Chippy in white
at 53.2 [illegible]
53.4 Fissile shale grey to
tan silty laminae in
tuff

8/8/80

SS1

Brown parted sh. w SI
Soft Semi lwd SS laminae
Lwr 1 Lt Brn
Dkg SS.
Fissile SV4/1 sh.
Lt gray sh
Pale soft calcareous
dk gray SS
Laminated SH/SI.
Fissile mudst.
SV5/2
Lt B Lgray
Same SH 5Y7/2
Fissile shale platey parting
5Y5/2 Dk. Ist. fissile
SS, vfg, Tabular, ripple
x lamination
intercalated w marl.
This forms a prominent
bed tabular ledge
on this level.

8/8/80

65.8 marl fissile
65.95 Carb papery sh.

67.1 Top of water is cave
67.2 about this level
well developed
[illegible]

67.7 [illegible]

[illegible]

Interval above is
[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

8/10/80

W. Scots x Bruce [illegible]

WCS 3 NW 1/4, Sec. 32 S7 N R 3 W

Orchard Bench [illegible]

TAbular Cord deed

Zingiberales - Poor

Zingiberales

Seeds

Spirematosperm

Zingiberales seed

WCS 6 [illegible]

Zingiberales

Acrorhaphe

Amesoneuron

8PSA NE¼ Sec 31

Orchard

Stevens quarry

~~was 6.5' level~~

between WCS 6 & 7

pors. Salvinia

Glyptostrobus

Alnus

Mesembrianthemum

"Acer" Samara

8/10/80

8053 Sandstone Quarry
WCS 7 - 112 m above base

SE Sec 17, T

1% Sand; matrix is clay

Plant debris

5054 Lighting Bolt
Jewel Necklace Dual

2/11/80

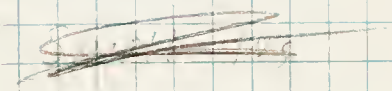
Boost

= RR 1 of Scott Wing

Fossil fish in Carb. strata
* Carb shale 5' above
lowest lignite in valley
Transitional Paleozoic Flora

in lacustrine

out Red basal sandstone
appears in SE Sec 30, NE Sec
of Tp Carb * Above
Section



8/12/60

10 5d

10/1 PLATANUS QUARRY

A

[illegible]
filled in
[illegible] upward [illegible]
from 1/8 to 1/2" thick

Platanus seed heads
[illegible]
[illegible]
[illegible]

3/13/80

Scott Cuticle Quartz and Scott

IN a Tabular Cork shale
and Quartz
Cuticles &
Cuticular

Carey
K. C. McKinney
NATASHA
Bruce Tierney
Scott

GREAT DIVIDE BASIN
Hydrologic Inv.
ATLAS HA-219
Sheet 1 of 3.

W. G. Rippichaud
R. Tschudy
B. Tschudy
A. C. [illegible]
A. Powell
J. GALTON
R. O'Donnell
J. HANLEY

8060

Slot Tipton.

CONTACT of Tipton
& relief Tongue.

Radial Tipton
Sensitive [illegible]
Focus
Time - Years Contact
Magnus [illegible]

8060 Semi-circular [illegible]
Shale line in Tipton
above This is +0.15 h.

This is independent of
Lithology & is in
Shales & Sometimes

8061 Delaney Thing STATION
on LANCK Rim.

About 75' of Karl
on Cathedral Bluff
Tongue of Sandstone

Oolitic is sample

8/16/80

0862 Bedrock top at Delano A

ST2.

Core at bottom

Appr

Dist

Ft

Ft = Bedrock

0820 DST via conduit is

20-25' above

mud drink line

8062 Abt 30' fine brn

[illegible] Cathedral

Tuff

8/16/80

On Antelope Spr. Quad

TFU - BATTLE SPRS CONTROL

8/16/80

Antelope Spr Quad

SW¼, SW¼ Sec 21 T 21N R 7 1W

Swr

8064

Battle Spr

F.U. Com

→8064 Park Strat 100 Battle Spr

4 J Jp

of hill

1240m W, Begin, Sec 21, T 21N, R 9 0W

Allantoidea sp. Strat

Mat nub.

Mat reynolds.

Vinca

Porosia

Excellent [illegible] vesic.

Exc [illegible] w/ basal 20% dense

Large cm.

Ar [illegible]

[illegible]

3' [illegible]

[illegible]

Elyptoidea

Pers. Tes. Uniporus

No conifers

[illegible]

[illegible]

Section 1

9. 6' SS-Xbedded [illegible] hematitic
8 1' Soft SS. [illegible]
7 3' SS, Xbedded [illegible]

6. 2½' [illegible] Sh. with Marine [illegible]

5. 2½' Buff SLTST finely [illegible]
4 " Silty Sh. finely [illegible]
light grey

Tfu 3 [illegible], Quartzitic SS. roof
2 [illegible] SS
1 3' Coal [illegible]

8065b

8065a

8/16/80

8065 NW 1/4, NE 1/4 Sec 13 T21N, R9W
1-1/10 mi by 1.2 mi NE Corner

8065 A 1' Carb Silt
3' below Sandstone Capping FU.
11' to Top of FU.

Sequoia mulch
Gypsum
Unknown Cercocarphyllus
Plant Species Listed

4 4'
3 4' Ledge of FU Sandstone
2 3' Silt
1 3' Carb Silty Silt

8065 b

8/17/80

8066 Piping, 2) sec. 28

Above Tributary #5 Co., 2).

SW 1/4 sec 11, T 21 N, R 94 W
Sweetwater Co. Wyo.

Twelve Mile Hole
SW 1/4, SW 1/4, SW 1/4, Sec 4, T. 21 N, R94W
Sweetwater Co, Wyo
Cathedral ~~Cliffs~~ ~~Tongue~~ Bluffs
Tongue of the Green River Fm
E. Eocene

8/19/60

8/18/80

TIPTOP BUTTES.

CAPPED BY LANCE.

SHALE AT BASE OF LANCE.

[illegible]

P A-28 PICTURE.

F071

NE NE Sec, Sec 27, T 20N, R 96W.

SHALES DIRECTLY ABOVE MONUMENT
IN FISSILE INTERVAL
THE TWO BUTTES.

LEPIDOLEPIS
HEMICLEA

F071b TURTLE REMAINS AT
TOP OF SHALE
7' ABOVE TIERNEY #6

INTERVALS ABOVE TIERNEY COALS
BARREN OF PLS. FISSILE GREY
SHS & SLTY SHS

6/16/80

807 Tipton Butler Coal

Battle Coal,
appear bx [illegible]
bit shale, fissile, lt
[illegible] wk
no fossil pls

Bx 26 [illegible]

80 72 Fort Union Fm. - Below Rd
bel 25 below
bel SS at Top

3

80 72 Petrocary: Aspidi
P. undet Dinosaur

Carb Sh #4

80 72 b Ave in Carb Sh #2
in Channel Sand

#1 in
0 Carb Sh 1 Top in
Gully

25' Carb Sh 2 Coll 80 72 b

35 Carb Sh 3 ~~Coll 80 72~~

50' Thin Carb Sh Set Sandstone
to Carb Sh #4 1/8' Mi Coal

76' Grey Shale Base Thick 3'

50 72

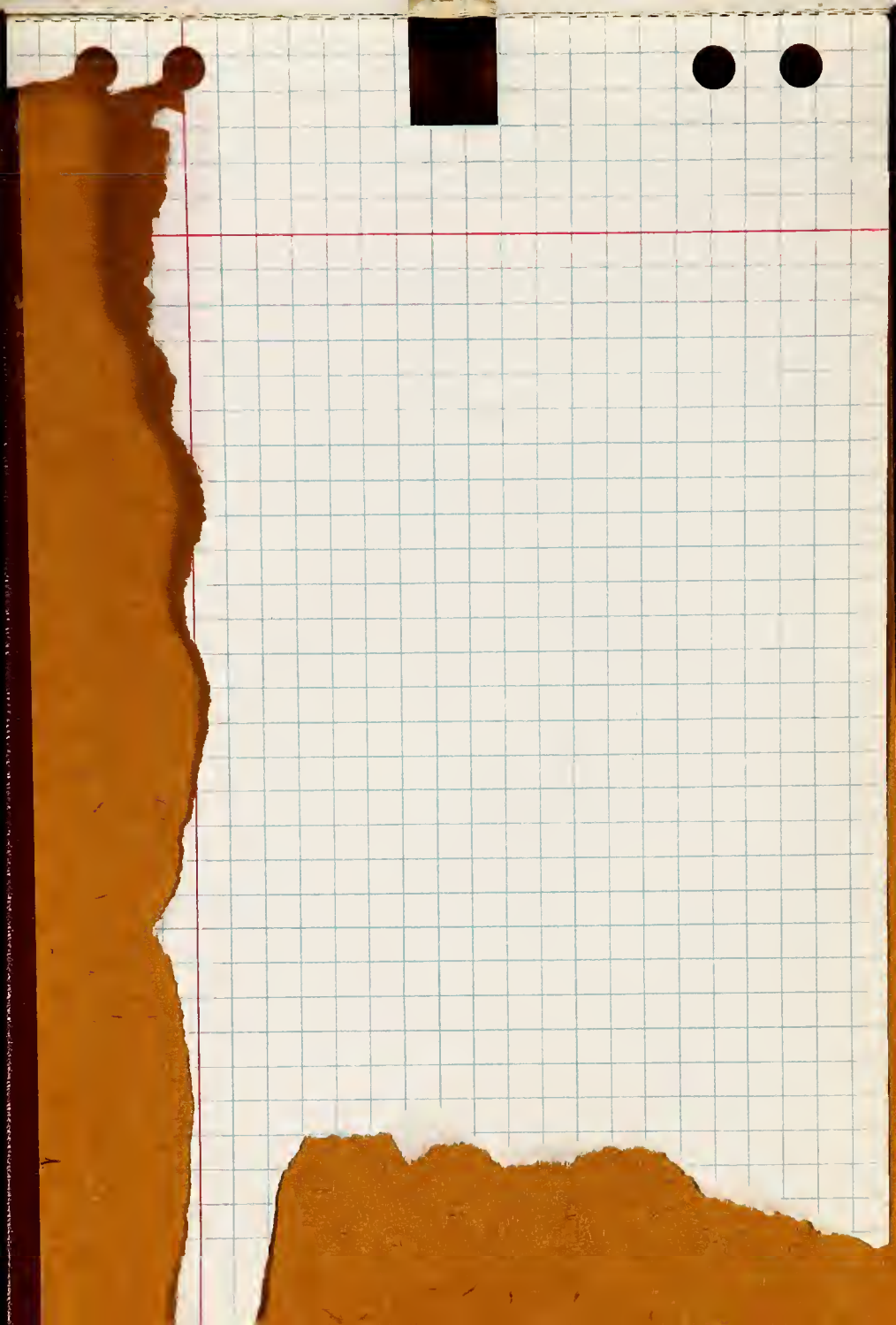
90' X Middle Fork Ft. Arkansas
BATTLE Spks

X Contact FU & BATTLE Spks
between 70 & 90'

Paleozoic of N. M.

Foerch & Magathan

RMAG Publ. $15.00



Tee Shirts

Dinosaur Quarries
2122 Washtenaw
Ann Arbor MI 48104

5.00

TED FREMD
FOSSIL BUTTE N.M.
P.O. BOX 527
KEMMERER, WY
83101

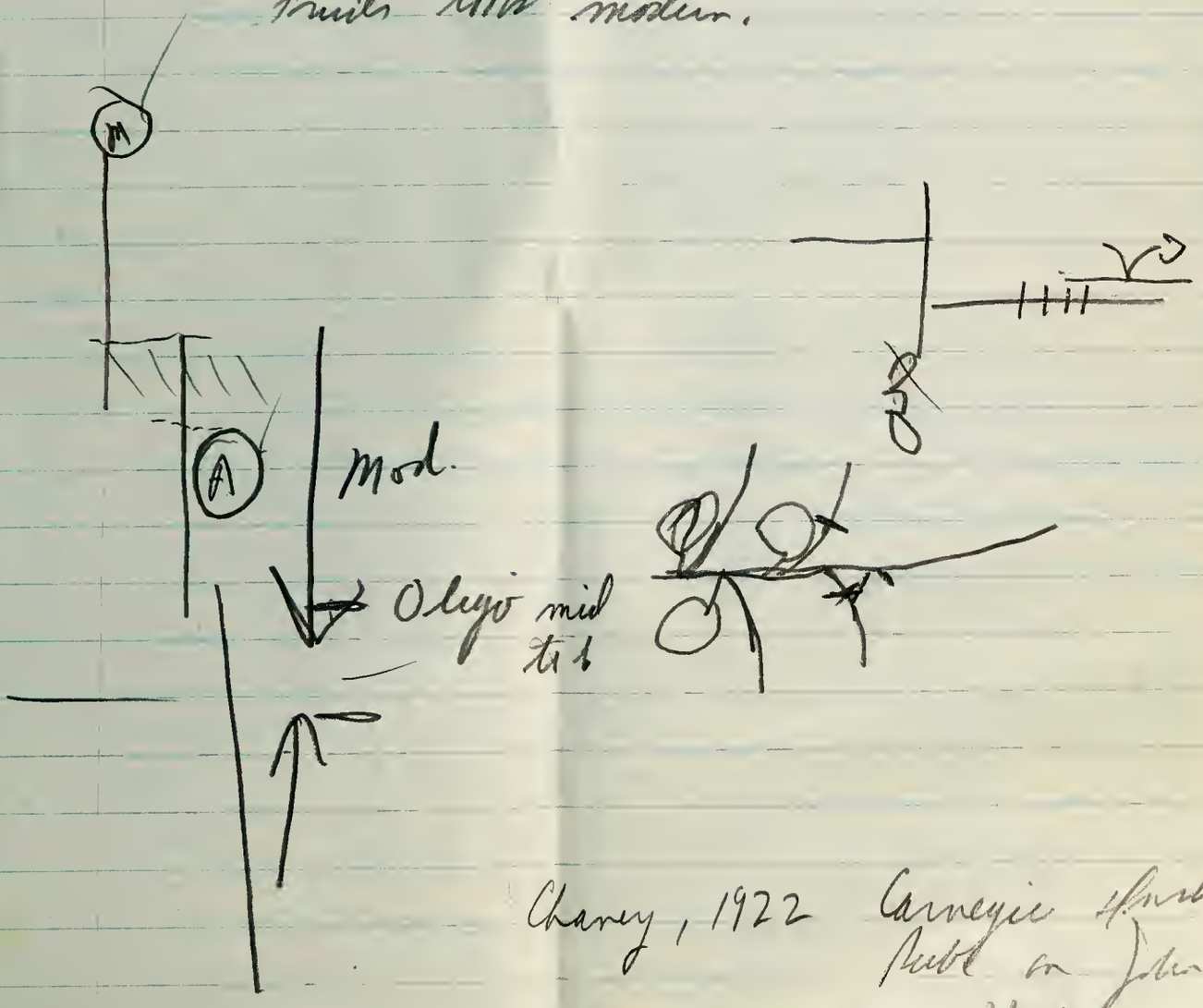
Please send list

Fossil Lake
Shaw Conn.
Jay's Junky
Hwy 9 mile

John Day beds — Oligocene (mid or lower?)
Units above are
Lower Mio or U. Olig.

Cercocarpus ultimus Pseudolarix
Fruits + Foliage at
Bridge Gulch (Ager Flora)
Picture Gorge + Kimberly Formation
4 or 5 mi E of Dayville

Fruits both modern.



Chaney, 1922 Carnegie Inst. Publ on John Day.

7/27

A-10 Hancock Tree Canyon

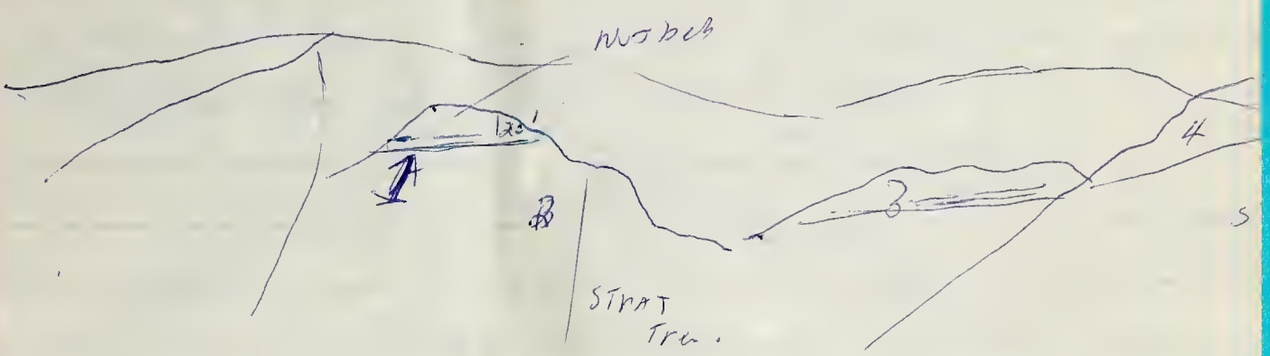
From "litter" layer
Trunk of Cercidiphyllum
Platanophyllum wood.
Wood fi

This is from a mud flow above a colluvium above the nut beds. Nut beds had been anticlinally folded before dep. of Hancock Canyon beds.

~~Poss.~~ More temperate elements in lvs + wood. Poss. from uplands

Chas. J. Metz
1980

7/26/80.



FACE 3 20' Thick interbeds of STST + Coarse ss SITST w fruits
Base of Cliff w brown layer at base leaves w/ STS. + leaves.
More massive beds of coarser MAT.

Toward top -
Leaf bed basal 1 foot ~~laminated~~ ll bedded ss, sists in 6" beds basal ~~1 foot~~ 10 feet

Standing Equisetum up to 2" long projects up out of SITST bearing lvs. into ss. layers- Equisetum on levees.

Upper part of NUT. beds deposit Conglomerates interbedded in upper 10' Pebbles up to 6-8" not touching open framework.
These are "NUT beds" of Scott 15' above leaf beds.
NUTS. in this bed

Pit 1 Px26 & CONTACT of NUT beds w red montmorillonitic unit.

PIT 1 Meliosma wood fruit seeds & wood
→ abT 50% LAURACEAE